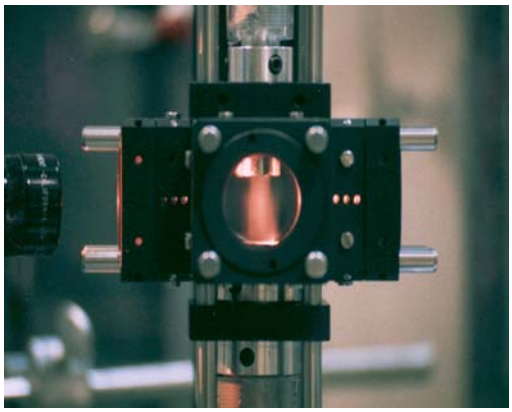
Edgewood Area - Aberdeen Proving Ground, Maryland 21010-5424
U.S. Army Soldier and Biological Chemical Command

# Optical Characterization Laboratory

**FEATURES:**

- Laser tunable from 250 nanometers to 2200 nanometers with pulse energy from 5 to 40 milliJoules
- Ultraviolet arc lamps and infrared glow lamps
- Optical characterization equipment such as a wavelength/line-width meter, energy meters calibrated to NIST standards, and an ultraviolet-visible laser beam analyzer
- Spectral analysis with high resolution, high sensitivity single and double monochromators with CCD detectors
- Dry and wet aerosol generation capability
- Mass concentration and particle size distribution analysis



The Optical Characterization Laboratory was created to examine optical characteristics of aerosols and vapors in order to investigate chemical and biological contaminants in the environment. To meet this objective, the laboratory was outfitted with the capability to perform optical characterization experiments on numerous substances, ranging from harmless pollen to hazardous chemicals. Its extensive capabilities allow for the analysis of air quality in all types of facilities and dwellings.

Scientists at the laboratory can examine almost any aerosol, wet or dry, and many vapors. Studies on wet substances are superior because the properties of aerosols are certain to remain constant when wet. Laboratory analysis is also conducted on controlled concentrations of aerosols to precisely determine their optical properties. Investigations on scattering, absorption, and the fluorescent properties of different materials in solution; wet generated aerosols; and dry aerosols have been conducted using an array of instrumentation.

Because scientists at the Optical Characterization Laboratory have experience in integrating off-the-shelf technology and have a wide range of equipment, accurate analysis is quickly generated. A containment laboratory for examination of noninfectious bacteria, fungi, dusts, and chemical compounds is maintained on site. Shop facilities and skilled personnel allow for the design and fabrication of specialized equipment needed for customer projects. Laboratory technicians have the ability to set up turnkey experiments, train others in the use of equipment in the laboratory, provide raw data, or perform an analysis and generate a report for others.

Environmental agencies, state and local governments, and businesses would benefit from the air quality studies available from the Optical Characterization Laboratory. Preventative measures can be taken if studies reveal infection-causing toxins located in the air ducts of buildings or in lead-based paint. Experimental investigations performed at the laboratory include: Creation of a fluorescent database of bacterial and viral growth media, pollens, and other naturally occurring (non-propagating) aerosols; maintenance of a fluorescent database of rusts, fungi, and smuts; quantifying particulate densities; design and execution of experiments to determine the optical properties of aerosols in stream flows; and determination of the optical properties of bacteria grown in various media.

For additional information, please E-mail research.technology@sbccom.apgea.army.mil.

For information on Technology Transfer applications, please contact us by E-mail (technical.outreach@sbccom.apgea.army.mil) or by fax to 410-436-6529.



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